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## Imaging

### QUANTITATIVE ASSESSMENT OF MITRAL ANNULAR CALCIFICATION BY CARDIAC CT IN A DIABETIC POPULATION: ASSOCIATION WITH CARDIOVASCULAR RISK FACTORS AND CORONARY ARTERY CALCIUM

ACC Moderated Poster Contributions

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**Background:** Mitral annular calcification (MAC) is a degenerative process involving the fibrous annulus of the mitral valve. Prior studies have shown that MAC is associated with coronary heart disease (CHD), heart failure and stroke. MAC is not well characterized in type 2 diabetes (T2DM), despite the observation that it may be increased in this population. In this study, we aimed to determine which CHD risk factors were associated with MAC in individuals with T2DM.

**Methods:** We measured MAC Agatston scores among all subjects with a baseline electron beam cardiac CT (N=1743, mean age 59 yrs, 37% female, 61% Caucasian) in the Penn Diabetes Heart Study, a cross sectional study of subjects with T2DM but no coronary or renal disease. MAC was defined as the presence of calcium in the mitral annulus. We used logistic and tobit regression, with stepwise backward elimination for multivariable modeling.

**Results:** MAC was seen in 12.0% of subjects, who had a median Agatston score of 72.3 [IQR (22.2 - 256.9)]. In multivariable logistic regression, MAC was associated with older age, female gender, Caucasian race, and the duration of diabetes [OR for MAC of 1.26, (95% CI 1.04-1.50) for every 10 years of diabetes]. These same risk factors were directly associated with the quantity of MAC measured by Agatston score in multivariable tobit regression. MAC was not associated with hypertension, hyperlipidemia, tobacco use, serum creatinine, BMI, HbA1c, the presence of the metabolic syndrome, or CRP levels; however, it was strongly associated with coronary artery calcium (CAC). The odds of MAC also increased across increasing levels of CAC [ORs for MAC of 3.0, 3.6, 3.8 and 5.9 for CAC Agatston scores of >0 to 10, >10 to 100, >100 to 400 and >400, compared to no CAC respectively (trend  $p < 0.001$ )] in fully adjusted logistic regression models.

**Conclusions:** In diabetics, female gender, CAC and the duration of diabetes were independently associated with the presence and extent of MAC, however, many traditional CHD risk factors were not. These data suggest that T2DM itself may contribute to the development of MAC. Whether MAC forms via distinct mechanisms from CAC remains to be determined.